1995-04

SVS: Can the shared variable paradigm exist in massively parallel multiprocessor architectures?

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IEEE

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Title: SVS Can The Shared Variable Paradigm Exist in Massively Parallel Multiprocessors
Year: 1995
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Abstract: During recent years there have been many efforts aimed towards the elimination of the gap between shared memory and message passing parallel computers. Many researchers have addressed the problem by implementing distributed shared memory (DSM) systems. In this paper, we present a new approach to DSM, focusing on shared variables. An approach like this can operate complementary to message passing environments, taking over the complicated task of process synchronisation, or it can act as an integrated, autonomous system of interprocess communication, if the use of the offered shared memory is not heavy. We investigate the viability and efficiency of such a system in a massively parallel environment where non-contention is difficult. SVS (Shared Variable System) is an implementation of this idea, in the form of a runtime library on a massively parallel Parsytec GCel 3/512. We present the philosophy, inner-structure and the user interface of SVS, along with the first experience with its use.